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China: Petroleum Export Prospects

Aug 74

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Intelligence Memorandum

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China:
Petroleum Export Prospects

KEY FINDINGS

- A. The People's Republic of China (PRC) will earn about US \$350 million from the sale of 4 million metric tons of crude oil to Japan during 1974 and may offer another million tons before yearend.
- B. The Chinese have told Japan that they are ready to expand oil exports up to 10 million tons in 1975 and to 50 million tons (1 million b/d) in 1980.
- Reserves are large enough to support the 1980 level of exports, even without production from offshore fields.
 - If production accelerates or even if it only continues its current average growth of 22%, the PRC will still have generous leeway for using oil to modernize the economy.
- C. Limited offshore exploitation is confined to the shallow waters of the Po Hai (Gulf). Activity in the deeper waters of the continental shelf has been limited to geological surveys.
- D. Only if the PRC encounters unexpected difficulties in achieving the output of crude oil necessary to meet increased domestic and export requirements will it be interested in joint ventures, direct foreign investment, or product sharing.
- E. The abundance of oil will ease, not solve, China's deep-seated problems grounded in population pressure, low productivity, and technological lags.

Note: Comments and queries regarding this memorandum are welcomed. They may be directed to Mr. [REDACTED] of the Office of Economic Research,

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DISCUSSION

Introduction

1. China will export at least 4 million tons of crude oil to Japan in 1974, and Chinese officials have suggested that much larger amounts will be available to Japan during the rest of the decade. Peking has also entered other Asian oil markets, promising to deliver small quantities of petroleum products and crude oil to Hong Kong, Thailand, and the Philippines. This memorandum reviews the place of petroleum in the PRC energy supply position, the recent growth of the petroleum industry, and current policies for petroleum development and assesses the prospects for China's becoming a major exporter of petroleum.

Energy Supply Position

2. The PRC used an estimated 365 million tons (SFE basis)¹ of primary energy in 1973. China consumes about the same amount of energy as Japan, West Germany, and Great Britain; only the United States and the Soviet Union use more (see the chart). Coal accounts for almost four-fifths of all primary energy produced. It provides directly or indirectly 85%-90% of the power for industry, generates 75% of all electric power, and powers 80% of the railroad locomotives. Coal also is a major raw material for the rapidly developing chemical fertilizer and other petrochemical industries.

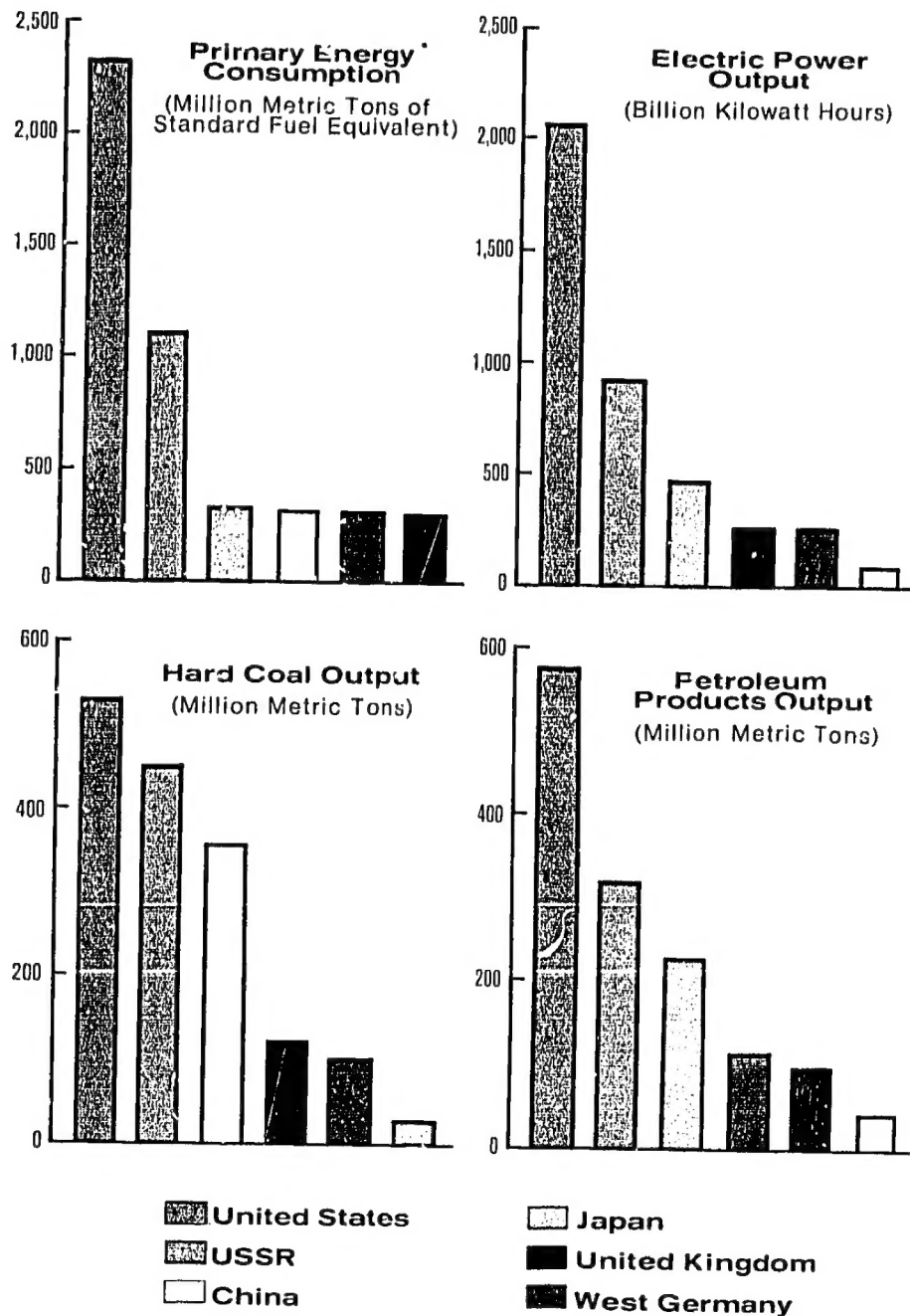
3. Other significant contributors to China's primary energy output are petroleum and hydroelectric power. In 1973 the petroleum industry provided about 19% of total primary energy output. Hydroelectric power contributes only about 3% of the total primary energy output. China has no nuclear powerplants.

4. Currently, energy supplies are tight, and coal production has not kept up with demand.² Although the rapid growth of petroleum supply gives Peking the option of substituting oil for coal, the regime has taken only limited steps in this direction, at least partly because of China's huge reserves of coal. More important, the regime appears to believe that China's increasing oil supplies are better used to expand the petrochemical industry and to earn much-needed foreign exchange.

1. Standard Fuel Equivalent (calorific value of 7,000 kilocalories per kilogram).

2. An assessment of this situation is included in ER RP 74-5, *China: Energy Supply Problems*, March 1974, Secret No Foreign Dissem.

Energy Comparisons, 1973



*Data are for 1972

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Crude Oil Supplies

5. China achieved self-sufficiency in crude oil in 1965 and is now the world's 13th largest producer. Output of crude oil in 1973 was 53 million tons (see the table). PRC crude production in 1973 was about the same as Algeria's (53.5 million tons); was the second largest in East Asia, close behind Indonesia (66.2 million tons); and was the second largest of the Communist producers, behind the USSR (421 million tons). Crude oil output in China grew at a rate of 22% per year during 1965-73, and output in 1974 is planned to rise by 30% to about 70 million tons.

6. The crude oil is coming from (1) relatively new fields in Manchuria (the Ta-ch'ing field), north China (the Ta-kang and Sheng-li fields), and central China (the Chien-chiang field), and (2) older fields in the western part of the country (Yu-men, Tsaidam, Karamai, and Yen-ch'ang). (For the location of major Chinese

petroleum facilities, see the map.) The rapid growth in output since 1965 is the payoff from wide-ranging geological surveys started 20 years ago and from preparatory field development carried out in the late 1950s and early 1960s. Approximately 8 years elapsed between the initiation of general prospecting activity and the achievement of large-scale production in 1963 at the Ta-ch'ing field; almost 10 years were required for development of the Sheng-li and Ta-kang fields.

7. There are no authoritative estimates of oil reserves in the PRC. The most comprehensive US study available estimates reserves to be 2.7 billion tons, but other studies give higher figures. Considering that large areas have not yet been surveyed, actual reserves are probably much larger. The search for new resources is continuing. As new fields move into production, the oil exploration teams move to new areas. The main thrust of the Chinese effort is still on land.

8. Offshore exploration has barely begun. Exploitation of offshore oil has been confined to the shallow Po Hai. The Po Hai fields, which are adjacent to and probably part of the highly productive oil basin underlying the onshore Ta-kang and Sheng-li fields, could begin to produce in the next few years. Large-scale production from the Po Hai is probably 8 to 10 years off, and perhaps longer, because of technical difficulties involved in offshore exploration.

9. Activity in the deeper waters of the continental shelf in the Yellow, East China, and South China seas has been limited to geological surveys. The Chinese have not had the equipment and technology necessary for drilling. During the last

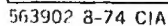
China: Crude Oil Production

	Million Metric Tons
1950	0.2
1955	0.9
1960	5.3
1965	10.8
1966	14.0
1967	14.0
1968	15.0
1969	20.3
1970	28.5
1971	36.7
1972	43.0
1973	53.0
1974 ¹	70.0

1. Planned.

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year, however, China has committed about \$150 million to equip itself with rigs and supply ships for deepwater exploration.

10. China's willingness to spend scarce foreign exchange for deepwater exploration seems less the result of an urgent need for the oil than of fears that foreign rivals will stake out prior claims on the continental shelf. The Chinese clash with the South Vietnamese over the Paracel Islands in January 1974 reflected PRC sensitivity on the issue; the PRC has a drilling rig operating on one of the islands. The PRC supported the 200-mile resources limit claimed by a number of other nations at the Law of the Sea Conference in Caracas and adamantly held to that position in the recently suspended negotiations with Japan for a formal fisheries agreement.

Oil Refining and Transportation

11. The PRC has given high priority to refinery construction since the mid-1960s. Current Chinese refinery capacity is probably in excess of 60 million tons, and additional capacity is under construction. The progress in construction and the absence of Chinese interest in importing refinery equipment suggests that the PRC will be able to construct sufficient refining capacity for its own needs.

12. Chinese transportation facilities have been hard pressed to keep pace with the growth of crude oil production. For the past 18 months, the railroads have experienced a widespread – but not crippling – shortage of tank cars. The PRC inventory of tank cars, which stood at 46,000 cars in 1973, has increased by 50% since 1969, but production of crude oil nearly tripled during the same period. The difference has been made up by increased use of pipelines and coastal tankers.

13. Almost half of the Chinese domestic tanker fleet, which now totals about 600,000 deadweight tons (DWT), has been acquired or built since 1971. Additional tankers – all less than 50,000 DWT – are under construction in Chinese shipyards. About one-fifth of the 53 million tons of crude produced in 1973 was moved in domestic tankers, mainly from Dairen, Tsingtao, and Chin-huang-tao, to refineries in Shanghai and Nanking. The products from these refineries are primarily distributed in the oil-deficit areas of central and south China.

14. The PRC recently completed a major pipeline running from the Ta-ch'ing field in Manchuria through the city of Fu-shun to new oil-loading facilities at the port of Chin-huang-tao. Although no progress has been made on a planned branch pipeline from Fu-shun to Dairen, construction is reportedly under way on a pipeline from the Sheng-li field in Shantung to the port of Tsingtao. Chinese spokesmen have said that the main purpose of these pipelines is to facilitate the export of oil, which now moves to port mainly by tank cars.

Petroleum Consumption

15. Aside from fueling its growing defense establishment, the PRC is also using its oil supplies to develop the petrochemical industry; to supply expanding civil air, merchant marine, and truck transportation services; to increase the supply of fuels for irrigation and farm machinery; and to generate a portion of its electric power. Even the Chinese consumer has felt direct benefits: kerosene for home use was removed from the list of rationed commodities in 1972. Consumption of petroleum products in these sectors cannot be estimated with any precision, but it is clear that the sharply increased supply of petroleum is causing important changes in almost every sector of the economy and is contributing to the general modernization of the economy. The leadership, however, continues to control the allocation of petroleum strictly. Supplies are channeled to priority users, and recurrent campaigns are mounted for the conservation of petroleum by every consumer.

Petroleum Export Policy

16. Peking entered the international petroleum market in April 1973 with a sale of 1 million tons of crude oil (20,000 b/d) to Japan. Prior to this, Chinese exports had been limited to small quantities of petroleum products for political allies such as Albania, North Korea, and North Vietnam. Chinese sales of crude oil to Japan in 1974 will be at least 4 million tons (80,000 b/d), worth about \$350 million.³ China has also started to export small quantities of petroleum products to Hong Kong (300,000 tons) and Thailand (125,000 tons scheduled).

17. Oil exports are a welcome addition to China's offerings. Large imports of wheat and new multibillion dollar programs to buy industrial plants have forced China to seek new means of financing its trade. Aside from expanding its use of short-term and medium-term credit to meet its immediate financial needs, Peking has moved to increase earnings from exports. Prices of Chinese goods have been raised and new markets have been opened for traditional exports. In the next few years, exports of petroleum could provide one-half billion dollars annually, thus contributing measurably to China's ability to pay for its rapidly expanding imports.

Political Uses of Oil Exports

18. Peking is using "oil diplomacy" in its relations with Japan and a number of other Asian nations. The agreement to ship 125,000 tons of diesel fuel to Thailand in 1974 and a promise to provide the Philippines with 250,000 tons of crude oil, possibly in 1975, are part of the PRC attempt to normalize relations with these states. The prospect of expanded shipments of crude oil for Japan was apparently used in the negotiations concluded in April 1974 for a civil aviation agreement. Soon after the agreement was reached, the Chinese told the Japanese that they were ready to expand oil exports up to 10 million tons in 1975 and

3. PRC oil imports are nominal. Small quantities of crude are imported from Albania and special products are imported from several other countries.

to 50 million tons (1 million b/d) in 1980. The Japanese announcement in late July that a delegation was being sent to Peking to begin negotiations for a long-term oil agreement may signify that the PRC is ready to make good on its promise. The export of 50 million tons of oil in 1980 would provide Japan with 12% of its projected consumption and, at current Middle East prices, could earn China about \$4 billion.

19. The offer also appears to have been used to counter Soviet influence in Japan. China in effect offered the Japanese twice as much oil as they would have received from the Tyumen project (25 million tons a year), a project that now appears doubtful.

Prospects for Oil Exports

20. Peking's plans to expand oil exports substantially during the next five years are borne out by the construction of new oil-handling facilities at the ports of Chin-huang-tao and Tsingtao and the purchase of dredging equipment needed to make Chinese ports deep enough for large tankers. (For a list of Chinese purchases and negotiations for petroleum-associated equipment, see the Appendix.) China is also actively engaged in acquiring tankers of more than 50,000 DWT to transport crude oil for export. The tonnage of tankers in the Chinese international fleet has doubled in the past year and now totals almost 200,000 DWT.

21. The goal of 50 million tons of crude oil for export in 1980 appears feasible. Reserves are large enough, even without production from offshore fields. If production accelerates, or even if it only continues to grow at 22% - the rate achieved during 1965-73 - the PRC could export 50 million tons in 1980 and still provide a generous leeway for using oil to modernize the economy.

22. If the PRC encounters unexpected difficulties in achieving the output of crude oil necessary to meet increased domestic and export requirements, it might change its attitude toward direct foreign participation in the development of the petroleum industry. The PRC's present position is against joint ventures, direct foreign investment, and product sharing. Nevertheless, "cooperative" arrangements - arrangements initiated by the PRC rather than a foreign party and presented as a straightforward commercial exchange of technology and equipment for a specified quantity of production - cannot be ruled out. Some such arrangement may be required for the PRC to exploit fully the oil reserves in the shoal water of Po Hai. Exploitation of the deeper waters off the Chinese coast almost certainly will require foreign, and particularly US, technology.

23. The emergence of the PRC as a major petroleum exporter in Asia will enhance its influence in the area, and continued Arab attempts to manipulate world oil supplies will strengthen this influence. Rapidly increasing oil supplies will be a major factor in modernizing the PRC economy and will greatly facilitate China's use of foreign trade to develop the economy. China's oil resources will ease, but not solve, the underlying problems of low levels of productivity, population pressure, and technological lag, which constrain the pace of Chinese economic growth.

APPENDIX

CHINA: PURCHASES AND NEGOTIATIONS FOR PETROLEUM-ASSOCIATED EQUIPMENT

Country and Company	Equipment	Million US \$	Comments
Purchases			
Denmark	One semielevating platform, for drilling to 5,000 meters	N.A.	Order placed Apr 1974.
An unidentified European country	Three used tankers; two for Po Hai station	N.A.	Purchased May-Jun 1973.
France	One seismic vessel fully equipped with steam bubble gear	N.A.	Purchased Dec 1973, delivered Mar 1974.
Compagnie Generale Geophysique	Seismic vessel with crew for offshore exploration	2	Service contract Sep 1973.
Hong Kong Weco Shipping Ltd. (Aarhus Floating Drydock Co., Denmark)	Eight offshore supply ships	20	Purchased 1974 (?)
Japan Sumitomo Shoji, Marine Ind., Niigata Engineering	Two ADS-IV diving systems; one 500-ton survey vessel	N.A.	Ordered prior to Jan 1974.
Hitachi	Five supply ships	N.A.	Ordered late 1973 for 1975 delivery.
Mitsubishi	No. 2 Hakuryu used heavy-duty drilling rig	21.4	Contract Dec 1973.
Nippon Kokan	Eight self-propelled bucket dredges	53	Contract Jun 1973.
Japan Drilling Co.	Used offshore drilling rig	8.5	Purchased Sep 1972.
Netherlands N.V. Industriele Handelscombinat	Four training suction hopper dredges	39.3	Contract early 1973.
Singapore Robin Loh	Four offshore drilling rigs for up to 300 feet	12-15 per unit	Preliminary contract May 1974; to be delivered before the end of 1975.
Robray (member of Robin group of companies)	Two offshore oil drilling rigs (three-leg jack-ups for 300 ft., drill to 20,000 ft.)	30 per rig plus 7.5 per rig for asso- ciated Armco Steel Corp. equipment	Preliminary contract scheduled for Jul 1974, delivery by end Nov 1975.

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Country and Company	Equipment	Million US \$	Comments
Robin Loh	Ten offshore supply ships	2.5	Preliminary contract May 1974; to be delivered before the end of 1975.
Sweden Atlas Copco	Heavy drilling and prospecting equipment	3.6	Contract Dec 1973.
United States Rucker Co., George Space Corp.	Oil exploration and drilling equipment	8	Contracts 1974, delivery second half 1974.
Negotiations			
Japan Hitachi and Mitsubishi	Two large self-propelled rigs with 8,000-horsepower ratings	N.A.	Negotiating Jun 1974.
Mitsubishi	Drilling platform for 53-meter depth, 3,500-meter drill hole	N.A.	Negotiating Jun-Jul 1973.
Nippon Steel, Mitsui, Teikoku Oil	Offshore 120-centimeter (cm) pipeline	N.A.	Peking discussions Oct 1973.
Nippon Kokan	Offshore 60-cm oil pipeline	N.A.	Consultations in 1973.
Asia Offshore Drilling Co.	Jack-up offshore drilling rig	N.A.	Negotiating early 1973.
United States Baker Trading Co.	Secondary recovery equipment	50-100	Negotiating spring 1974.
Bethlehem Steel	Four jack-up rigs	N.A.	Negotiations Jun 1974.
Unknown	Three type-170+ seismic data processing systems, with spare parts	2.99	Proposed Jul 1974 for sale.

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